

The appearance of an article in the NEW ENGLAND JOURNAL OF MEDICINE in which Dr. Henry Satterlee propounding his theories on arsenic became the basis for a story in the NEW YORK HERALD TRIBUNE. The TRIBUNE the following day ran a TIRC comment.

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## Science . . . Medicine

# Arsenic-Tobacco Link Pointed Out by Doctor

By Stuart H. Loory

Imagine the fear that swept through the British Isles in November, 1900, when 6,000 millhands and coal miners of the Manchester-Salford-Liverpool districts came down with arsenic poisoning from drinking adulterated beer.

Beer was known then—as it still is—as the “backbone” of Great Britain. A New-York Tribune correspondent in London wrote of the arsenic-poisoning scare: “The workingman now empties his pewter pint with more or less fear and trembling. Seventy died in the epidemic.”

At that time, few in the U. S. read the reports with more care than a young hospital intern from New Hampshire named Dr. Henry S. Satterlee. Yesterday Dr. Satterlee, now eighty-six and retired from general practice in Newport, N. H., pointed out in a telephone interview two lessons learned from the 1900 beer-poisoning epidemic, of interest to researchers studying the relationship between cigarette smoking, air pollution and lung cancer in 1960.

### Scientific Lesson

One lesson is scientific and concerns arsenic as a cancer cause. The other is philosophic and concerns the duty of government to look into public health menaces.

Investigators found that arsenic was finding its way into the British brew two ways—through glucose, a cheap sugar used as a substitute of the more expensive malt, and through curing the barley and hops over open malting fires. The coke used in the fires gave off large concentrations of arsenic. Tobacco, today, like the British barley of 1900, is cured over

open fires, absorbing arsenic. The leaves also absorb arsenic from pesticides.

It took a Royal Commission, appointed by King Edward VII and headed by the famous physicist, Lord Kelvin, to come up with the findings. In doing so, the commission developed a method for determining the amount of volatile (gaseous) arsenic given off by the fires.

The method, Dr. Satterlee wrote in the current “New England Journal of Medicine” out yesterday, has since been forgotten by researchers. Dr. Satterlee wrote researchers have been ignoring arsenic as a smoke (tobacco and industrial) pollutant because they have no good way of measuring its presence in its gaseous form. He suggests that researchers carefully at the sixty-year-old British method.

Perhaps more important, but of a philosophic rather than a scientific nature, Dr. Satterlee suggests another lesson to be learned from the beer poisoning epidemic. In his words:

“In 1960 it is sobering and edifying to reflect that a national challenge to British public-health administration was capable of evoking a competent and well-organized inquest that promptly discovered . . . a constructive solution to the problem.

By contrast, it is depressing to contemplate present-day inertia in the smoking-cancer problem, frustrated in a tangle of controversy and mixed motivation, without prospect of authoritative organization and co-ordination of action that its solution demands.”

Over the phone, Dr. Satterlee accused tobacco product manufacturers, other commercial and

industrial interests and the government, which receives large revenues from cigarette taxes, of refusing to face up to the smoking-cancer relationship.

Dr. Satterlee spends his time in retirement looking into arsenic as a cancer-causing agent in cigarette smoking. He is convinced there is a link. In 1951, he found American cigarettes contained forty times more arsenic than cigarettes made from Oriental tobaccos. He cites studies showing that smokers of American cigarettes are more likely to suffer lung cancer than Oriental cigarette smokers.

Dr. Satterlee's interest in cancer is an outgrowth of his earlier interest in arsenic poisoning, which induces shingles, a disease of the nerves. He has published five papers on arsenic in tobacco. Thirty years ago he began a study of vacuum cleaner dust for arsenic content. He found arsenic in cigarette butts and ashes and then went on to measure arsenic content in various brands of cigarettes.

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# Refutes Arsenic In Tobacco Link To Lung Cancer

Dr. Robert C. Hockett, associate scientific director of the Tobacco Industry Research Committee, took issue yesterday with the reported suggestion that arsenic in tobacco may be linked to lung cancer.

Dr. Henry S. Satterlee, of Newport, N. H., had reviewed the arsenic-lung cancer situation in an article in the current “New England Medical Journal,” one of the leading scientific journals in the country.

In his review, Dr. Satterlee said he is convinced there is a link between the arsenic in cigarettes and the appearance of lung cancer.

Dr. Hockett commented:

“The research into this subject has included: analyses of tobacco smoke, the soil in which the tobacco is grown, tests of smokers and non-smokers to determine the difference in arsenic absorption and inhalation tests with animals.

“All of these have failed to show any evidence that arsenic in tobacco has anything to do with lung cancer.”

He also said that “Dr. Satterlee cites no contrary research and has done no recent research on this that we know of.”

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